HA 1: Earthquake

Table of Contents

1.0 Introduction 1
1.1 Purpose 1
1.2 Scope 1
1.3 Activation & Plan Maintenance 1
1.4 Policies 1
2.0 Situation & Assumptions 2
2.1 Situation 2
2.2 Assumptions 3
3.0 Concept of Operations 3
3.1 General 3
Emergency Operations Center (EOC) 4
Damage Assessment & Incident Stabilization 5
Debris Removal 5
Environmental Protection 5
Shelter and Family Referral Services 6
3.2 Notifications 6
3.3 Preparedness 6
3.4 Response 7
3.5 Recovery 9
3.6 Mitigation 9
4.0 Organization & Responsibilities 9
4.1 Organization 9
4.2 Responsibilities 9
Coordinating Agency (LCCO DES) 9
Cooperating Agencies 10
5.0 Authorities and References 13
5.1 Authorities 13
5.2 References 13
6.0 Attachments 14
Attachment 1: Acronyms 15
Attachment 2: Definitions: 16
Attachment 3: EAS Instructions to the Public 17
Attachment 4: Incident Stabilization/Restoration Priorities 18
Attachment 5: Mercalli and Richter Scales 19
Attachment 6: Sample Condemned Building Notice 20

1.0 Introduction

Coordinating Agency:

- Lewis & Clark County Disaster & Emergency Services

Cooperating Agencies:

- All City & County Departments
- St. Peter's Hospital
- Emergency Medical Services (EMS)
- Local School Districts
- United Way
- Capitol City Amateur Radio Club (CCRC)/Amateur Radio Emergency Services (ARES)
- American Red Cross
- Tri-County CERT
- Special Needs Facilities
- Salvation Army
- Local Volunteer Organizations (NGOs, CBOs, FBOs, etc.)
- Montana Disaster & Emergency Services (DES)
- Montana Department of Public Health & Human Services (DPHHS)
- Montana Department of Transportation (MDT)

1.1 Purpose

The purpose of this annex is to supplement the Lewis & Clark County EOP by establishing policy and procedures/guidelines specific to earthquakes. It is not intended to define Standard Operating Procedures/Guidelines (SOP/SOG) for any particular agency, but to provide a framework for operations in the event of mutual aid between agencies. Special emphasis is placed on the use of mitigation, phased planning, and public education to increase the safety of the citizens of Lewis & Clark County.

1.2 Scope

This annex addresses response during and immediately after a damage producing earthquake and the planned recovery actions. This annex will not address seismic mitigation measures in building codes, land use planning, or continuing public preparedness education. Damage assessment is covered in Support Annex - 5.

1.3 Activation & Plan Maintenance

This annex may be activated independently or in conjunction with other Annexes, depending on the needs of the situation.

The primary responsibility for development and maintenance of this annex is that of LCCO DES with support from all cooperating agencies and departments.

This annex should be reviewed and revised annually, unless significant changes warrant earlier revision. Continued and regular revision and updating should keep this document valid and useful. Regular testing and exercising should establish the groundwork for efficient and expeditious delivery of assistance in times of emergency or disaster.

1.4 Policies

- This annex is effective upon approval.
- All appropriate governmental and volunteer agency resources should be used as available.
- The principal elected officials have the authority to declare a State of Emergency/Disaster within their jurisdictions and the responsibility to request a state or federal declaration if appropriate.
- State and Federal assistance should be sought if an earthquake causes injuries and damages beyond local response capabilities.

- Commissioners have the authority to enter into mutual aid agreements between their jurisdictions and other jurisdictions.
- All services should be provided without regard to economic status or racial, religious, political, ethnic, or other affiliation.
- During and after an earthquake emergency, emergency response resources should be primarily devoted to immediate life safety actions and the recovery of public infrastructure including roads, streets, and public facilities/utilities.
- The Incident Commander (IC) has authority to coordinate the use of resources and personnel at the scene of an emergency.
- As much as possible, all agencies and organizations involved in the execution of this annex should be organized, equipped, and trained to perform all designated and implied responsibilities contained in this annex and its implementing instructions for both response and recovery operations.
- All organizations are responsible for the development and maintenance of their own internal operating and notification procedures. No part of this annex is intended to supplant agency SOP/SOGs.
- All organizations are responsible for filling any important vacancies; recalling personnel from leave, if appropriate; and, alerting those who are absent due to other duties or assignments.
- Personnel designated as on-scene responders or representatives to the EOC should make prior arrangements to ensure that their families are provided for in the event of an emergency, so to ensure a prompt, worry-free response and subsequent duty.

2.0 Situation & Assumptions

2.1 Situation

- The western half of Lewis & Clark County is in Seismic Zone 3, which means that an earthquake will probably cause major damage. Earthquake recurrence intervals for the Helena area are:
  - Magnitude 5 is expected to occur once in a 32-year period.
  - Magnitude 6 is expected to occur once in a 190-year period.
  - Magnitude 7 is expected to occur once every 1,112 years. (*A simultaneous rupture of the Prickly Pear fault system could result in a 7.5 earthquake and cause over $100 million of property damage*).
- Helena had two earthquakes in 1935 that measured 6.0 and 6.3 on the Richter scale and caused over $4 million of damage. Four people were killed and over 60% of the buildings in the area were damaged to some degree.
- A 1981 geologic survey of the Helena Valley identified numerous faults that may move at any time. The most recent quake was a 3.7 near Marysville in Jan, 2011.
- Current Fault and Liquefaction maps and other information is available on the county website.
- Much of the Helena Valley consists of alluvial soil with a high water table, especially three miles to the west and south of Lake Helena, which may cause "liquefaction".
- MCA 10-3-104 and 10-3-406 give the Governor and local chief elected officials the authority to "*direct and compel the evacuation of all or part of the population from an emergency or disaster area…..when necessary for the preservation of life or other disaster mitigation, response, or recovery*;" and to "*control the ingress and egress to and from an emergency or disaster area, the movement of persons within the area, and the occupancy of premises therein*."
- Law Enforcement has the authority to order evacuations and close roads in emergent circumstances.
- The MDT and the Federal Highway Administration have the authority to close state and federal highways and bridge structures.
- The County Health Officer has broad authority over matters of public health to include air and water quality concerns, food supplies, wastewater systems, and disease prevention.

- City officials have the authority to condemn a building in the city as unsafe to occupy

2.2 Assumptions

- Field units may need to self-initiate responses and work independently until centralized command, control and communications can be reestablished.
- Depending on when the earthquake occurs, a large number of County employees may be unable to make it to work or to the EOC
- Scores of fatalities and injuries could occur depending upon the time of day the earthquake strikes.
- In addition to structural damage to bridges and buildings, an earthquake of magnitude 6-8 on the Richter scale may be expected to result in:
  - Additional natural or technological emergencies such as floods, landslides, fires, explosions, dam failures, and hazardous materials incidents.
  - Disruption of vital utility services such as water, sewer, power and natural gas.
  - Damage to and disruption of emergency response facilities, resources, and systems.
  - Civil and political emergencies, such as resource hoarding, price gouging, and fraudulent business schemes.
  - Gasoline and food shortages due to commercial businesses not being able to open.
- Telephone lines and radio repeater sites may be down after a major earthquake. Cellular phones may also be disrupted because of their dependency on landlines and repeaters.
- Many streets and highways may be impassable due to debris and collapsed bridges and overpasses.
- It may take days or weeks before and accurate damage assessment is available.
- Demand for resources may be critical.
- Enhanced public awareness via techniques such as citizen handouts, ad campaigns, evacuation routes and mapping information may be helpful.
- A significant number of casualties may occur during the post-emergency period from fires, electrocution, stress-related illness, debris-clearing accidents, etc.
- Both response and recovery operations may be hampered by debris blocked roads, damaged bridges or roads, and downed trees and utility poles.
- The need for increased security may exist.
- The impact on homeless individuals and Special Needs Populations may increase.
- Advance preparation by health care facilities, businesses, industries, and utilities is essential to maintain needed services during response and recovery operations.
- Severe economic consequences may result from an extended loss of electrical power, water and sanitation systems, natural gas service, or a combination of these. The inability to open businesses, provide fuel or natural gas, prepare food, provide clean water, and maintain sanitation may immediately and seriously impact hospitals, business, schools, and adult care facilities
- Damaging aftershocks may occur.

3.0 Concept of Operations

3.1 General

- Response agencies in Lewis and Clark County have committed to using the Incident Command System for all significant incidents. Following an earthquake with widespread damage, a Unified Command may be established among agencies or affected neighboring jurisdictions in order to assure more efficient management

of scarce resources. In this event, the local Command and General Staff may even co-locate with other neighboring jurisdictions in the best surviving facility. On-scene control may be delegated to the Operations Section Chief or to an on-scene Incident Commander in the event of multiple incident sites.

- The IC/UC should establish an Incident Command Post (ICP) as soon as possible and ensure that the location of the ICP and identity of the IC(s) is disseminated to all responders.
- The IC/UC should adapt the management structure to reflect the need and complexity of the incident. In accordance with other annexes, this may include, but is not limited to activating the EOC, establishing unified command, and requesting mutual aid support from neighboring jurisdictions.
- Continuity of operations and continuity of government will be essential following an earthquake. (see COOP/COG Support Annex)
- Once appointed, the Public Information Officer (PIO) will be responsible for public coordination and dissemination during the emergency and should clear all press releases through the Incident Commander or DESC. All approved press releases should be logged and a copy saved for the disaster records.
- During the aftermath, the PIO, in conjunction with the IC, should continue to provide pertinent information to the media and public as able. The public should be reminded to remain calm, stay tuned for more information, and to follow the instructions of emergency management personnel. Such instruction may include guidelines for returning to homes, shelter accommodations, sanitation, and where and how to report damages. *Attachment 3: EAS Instructions To The Public*.
- The PIO may also participate in a Joint Information Center (JIC), staffed by PIOs from various jurisdictions, to address the media with a single, coordinated voice.
- Information of greatest public interest immediately following an earthquake may include, but is not limited to; road closure, medical care issues, availability of hospitals and healthcare facilities, traffic management, security for affected areas, shelter locations, food and water quality, availability of ice, food and water, search and rescue efforts, insurance issues, power outages and telephone service
- Public Information lines may be activated at the EOC to receive information from the public, such as damage reports, sanitation problems, health issues, offers for donated goods, and other public safety-related problems.
- An immediate damage assessment should be made by all emergency response agencies and departments to determine their ability to respond, the availability of emergency responders and the status of each agency's station and equipment that would be required to conduct emergency response operations.
- Requests for mutual aid should be coordinated through the EOC, since more than one agency or municipality may be requesting mutual aid from the same agency or county. Allocation of resources should be made based on life safety, incident stabilization and preservation of important property.
- A Disaster Declaration will likely be obtained from the County Commission as soon as possible following the earthquake.
- A curfew may be imposed to improve safety and security in the affected area(s).

Emergency Operations Center (EOC)

(See the EOC Annex for more information)

- The EOC should be immediately activated either in its present location or in an alternate facility depending on the stability and safety of the present facility. It is essential that the primary EOC staff and volunteers report to the EOC as soon as possible following the earthquake.
- The EOC may provide support to the Incident Commander(s) in such areas as evacuation, communications, transportation, shelter, information management and resource support.
- A situation map should be maintained by the Planning Section in the EOC to illustrate the affected areas and any other pertinent information such as fires, flooding, impassable roads and alternate response routes.
- ARES may provide emergency communications from the EOC to wherever requested in the field and for other agencies, such as the ARC.

- Contact with the State Emergency Coordination Center (SECC) should be established by any means available and as soon as possible following an earthquake

Damage Assessment & Incident Stabilization

Damage assessment usually takes place in two phases: 1) an initial assessment, to determine general impact and damage to vital facilities and resources, and provide a brief overview of impact on citizens and businesses; and 2) subsequent, in-depth, assessments to determine the full extent of damage and the financial implications for disaster declarations and disaster assistance. Priorities in the initial assessment are generally the restoration of emergency response and direction and control capability, and the saving of lives. (*see Damage Assessment Support Annex*)

In an incident requiring damage assessment, such as an earthquake or flood, a *Damage Assessment Group* may be organized under the Operations Section. The initial assessment should take place under the direction of the *Damage Assessment Group*, with assistance from the *Planning Section/Situation Unit* as needed. Priorities in the second phase should be to estimate damages, restore public services and facilitate disaster assistance. The *Finance Section* may also provide assistance in Phase two assessments (cost analysis, budgeting etc.) The County does not have the resources to restore private residences, businesses, or utilities and should refer these people to Public and Individual Assistance programs as appropriate.

- **Initial Damage Assessment**
  - An aerial survey of the County should be performed as soon as possible after the initial shock. The Civil Air Patrol, US Forest Service, MT Highway Patrol, MTDNRC, and a number of public and private resources may be utilized. The results of this survey may then be used to facilitate more focused damage assessment on the ground.
  - Local building officials should direct damage assessment on vital facilities according to their assigned Branch.
  - The initial damage assessment should be augmented by "windshield" surveys and citizen reports, in order to provide an estimate of numbers of private homes and businesses affected.
  - This survey should be completed as soon as possible, since it will provide the supporting documentation for a disaster declaration, and establish a base for the secondary assessment process.
  - An assessment of damage to utilities, and evaluation of the immediate needs of the population, especially water and sanitation services, should be accomplished as soon as possible.
  - Potable water is a major concern following an earthquake. Power and gas for heating may also be extremely important, depending upon the season.
- **Secondary Assessment**
  - The EOC Finance Section should begin gathering dollar figures associated with the damage to support requests for disaster declarations and assistance. Resources and facilities, which will be vital to the economic recovery of the County, should be surveyed. These include all hospitals, schools, financial institutions, and major employers.

Debris Removal

Removal of debris from public roads/highways is the responsibility of the agency that is responsible for its maintenance. Removal of debris from private property is the responsibility of the property owner. (*see Debris Management Annex*)

Environmental Protection

The Health Department will take the lead in issues of sanitation, potable water supply and disease prevention. It must be assumed that municipal water sources may be disrupted with the potential for contamination of drinking water caused by sewage and other sources of infestations. Food supplies may be compromised by contamination or lack of power. Refuse could accumulate to create harborage for insects, rodents and other disease carrying vectors.

Shelter and Family Referral Services

If temporary lodging is needed due to earthquake, the ARC may activate and manage shelter operations as they are able. It is critical that all relief efforts to shelter and feed citizens are a coordinated effort between the Red Cross and all affected communities. The EOC is the logical broker for this communication.

The Salvation Army may also be requested to provide shelters and mass feeding assistance. Salvation Army operations should be coordinated through the EOC and Red Cross to prevent duplication of effort. (also see ESF 6: *Mass Care Annex*)

3.2 Notifications

- A worst-case earthquake scenario assumes that the quake would happen at night when key staff is at home, major arterials would be damaged, and all communications systems except car-to-car and portable radios would be inoperative for the first few hours following the shock. Since normal paging and call-back systems may be inoperative, members of response agencies should automatically respond to agency-established "rally points" as soon as possible *after ensuring the safety of their families*. Initial response operations should take place under the assumption that those personnel who must commute into Helena may encounter severe obstructions and delays.
- If the county radio system is still operational, responders should check-in with Dispatch as soon as they are able. If the digital system is down, analog radios may still function in response vehicles. If responders are unable to talk to Dispatch on a digital channel, they should try to establish communications on a common analog frequency.
- The DESC or his deputy may activate the EAS by contacting the **NWS (453-4561 / 2081)** to initiate the message. If phones are down, a message may be hand delivered to the primary EAS station, KMTX, at 516 Fuller Ave. Radio and TV stations will usually then copy the message and interrupt regular programming for the broadcast.
- If phones are operational, target notifications may be used as appropriate.
- The normal alert and warning systems may be down or limited following a major quake. It may be necessary to augment these systems with mobile public address systems, door-to-door contact, and posting notices on bulletin boards in designated public gathering places such as shelters.
- If communications are down, the most logical source of communications is the local ARES organization, which is able to provide portable and self-sustained Ham radio communication that can link critical sites such as the EOC, shelters, hospitals and others that may be needed.
- Earthquakes occur without warning. Follow-up confirmation on magnitude, epicenter, damage assessments, etc., will likely be received first through the 911 center and the media. The jurisdiction will also likely be inundated by the public with information on damage and life/safety concerns if communications are still working.
- Notification to all appropriate County, State, Federal and private agencies, businesses or individuals who can support emergency response or recovery operations will normally be done by the Dispatch Center or the DESC.

3.3 Preparedness

- Lewis & Clark County strongly encourages personal, family, and business emergency preparedness plans. During and after a damage producing earthquake, emergency response resources will be primarily devoted to immediate life safety actions, incident stabilization, and the protection/ recovery of public infrastructure including roads, streets, and other public facilities/utilities. Businesses and many families may be on their own for many hours.
- Business and private property owners need to plan for specific insurance coverage for structures and contents before an emergency occurs. Likewise, personal and family emergency plans should include food, water, prescription medicine, and heating and shelter support for at least 72 hours, if not longer.

- Continue to maintain and revise applicable response plans pertaining to earthquakes and other seismic activity including the EOP and supporting annexes, guidelines, and plans.
- Pre-designate evacuation routes and alternate routes for areas vulnerable to earthquakes.
- Conduct pre-incident planning for sheltering and evacuation related to earthquakes.
- Have personnel participate in necessary training and exercises.
- Participate in earthquake preparedness activities.
- Ensure emergency contact lists are updated and establish a pre-event duty roster allowing for 24/7 operational support for critical operations.
- Ensure earthquake response equipment and personnel inventories for local responders are updated. Test and maintain response and communications equipment. Keep a stock of necessary response supplies.
- Work for establishment of appropriate infrastructure protection measures in landslide-prone areas.
- Implement seismic inspection procedures on a regular basis and incorporate improvements to structures while also updating appropriate mitigation plans.
- Review resource lists (including private contractors) and availability of road-clearing equipment, four-wheel-drive vehicles, emergency generators, fuel, chainsaws, etc.
- Ensure that basic procedures are in place for rapid procurement of services, equipment and supplies.
- Pre-position equipment such as two-way radios, debris-clearing equipment, generators, light sets, fuels, food, cots, blankets, etc.; reallocation and disbursement of previously positioned equipment.
- Test equipment, e.g., FAX machines, telephones, copiers and especially generators under full load for a minimum of 8 hours. Generators should be capable of functioning for 14 days with adequate fuel and fuel resupply.
- Implement a public education campaign regarding the importance of having a family disaster plan and 72-hour preparedness kit.
- Prepare scripts covering shelter-in-place or evacuation as applicable. Provide shelter-in-place instructions or evacuation maps as appropriate. Include release instructions for media.
- Prepare messages for use by local radio and TV stations during emergency broadcasts.

3.4 Response

- Implement plans and procedures/guidelines.
- Establish an ICS or Area Command to manage the situation and response. For larger events that cross multiple jurisdictions, consider establishing a Unified Command with neighboring jurisdictions.
- Activate and staff the EOC. Staffing levels may vary with the complexity and needs of the response.
- Estimate emergency staffing levels and request personnel support.
- Notify supporting agencies through applicable ESFs as well as appropriate officials.
- Identify local, state, and federal agencies/entities that may be able to mobilize resources to support local response efforts.
- Determine the type, scope, and extent of the incident (recurring). Verify reports and obtain estimates of the area that may be affected.
- Notify command staff, support agencies, adjacent jurisdictions, ESF leads/coordinators, and liaisons of any situational changes.
- After immediate lifesaving needs have been met, the recommended response priorities within the first 72-hours following the earthquake are:

- Establish centralized communications to coordinate response and recovery efforts to determine the extent of the damage.
- Conduct preliminary damage assessment of critical infrastructure (hospitals, roads, bridges, rail lines, schools, shelters, aviation facilities and government facilities) to determine the structural safety of facilities in order to provide basic necessities in the affected area(s).
- Search and rescue of victims trapped in collapsed structures.
- Providing medical care to victims and the transporting of seriously injured to the appropriate medical facilities.
- Directing firefighting efforts to the most essential facilities and controlling the spread of fires.
- Providing basic mass care (food, water and shelter).
- Inspecting and evaluating the level of hazardous material release and the impact on the general public.
- Providing for the safety of citizens.
- Providing accurate, consistent and expedient emergency public information to the public.

- Develop and initiate shift rotation plans, including briefing of replacements during shift changes. Dedicate time during each shift to preparing for shift-change briefings.
- Confirm or establish communications links between jurisdictional EOCs including those at the county and state levels. Confirm operable telephone numbers and verify functionality of alternate communications resources.
- Obtain current and forecasted weather to project potential impact on response and recovery operations (recurring).
- Determine the need to conduct sheltering or evacuation activities (recurring). Evacuation activities should be coordinated among multiple ESFs.
- Determine the need for additional resources and request as necessary through appropriate channels (recurring).
- Submit a request for an emergency declaration, as applicable.
- Consider activating mutual aid agreements as conditions dictate. Make initial contact with mutual aid agreement partners. Place backup personnel teams on standby and alert resource suppliers of potential and current needs.
- Coordinate resource access, deployment, and storage in the operational area including equipment, personnel, facilities, supplies, procedures, and communications. Track resources as they are dispatched and/or used.
- Develop plans and procedures/guidelines for registering mutual aid and other first responders as they arrive on the scene and receive deployment orders.
- Establish a Joint Information Center (JIC) or coordinate with JIC(s) established by other jurisdictions. Staff JIC(s) with appropriate Public Information Officers (PIOs) as required.
- Formulate emergency public information messages and media responses using "one message, many voices" concepts (recurring). Message content may include expected impacts of the severe weather, expected duration, instructions for public protection, and planned activities to address the emergency.
- Record EOC and individual personnel activities (recurring). All assignments, persons responsible, and actions taken should be documented in logbooks.
- Record all incoming and outgoing messages (recurring). All messages and the person sending or receiving them should be documented as part of the EOC log.
- Develop situation reports (recurring). At regular intervals, the EOC Manager and staff should assemble a situation report.
- Develop and update the Incident Action Plan (IAP) (recurring). The IAP should be discussed at regular intervals and modified as the situation changes.
- Coordinate with private-sector partners as needed.

- Ensure that reports of injuries, deaths, and major equipment damage accrued during response activities are communicated to the IC.

3.5 Recovery

- Ensure an orderly demobilization of emergency operations in accordance with current demobilization plans.
- Once the threat to public safety is eliminated, conduct cleanup and recovery operations.
- Activate if necessary the appropriate recovery strategies, continuity of operations plans, and/or continuity of government plans.
- Release mutual aid resources as soon as possible.
- Continue EOC operations until it is determined that EOC coordination is no longer necessary.
- Provide public information regarding safe re-entry to damaged areas
- Coordinate with ESF 14 for Individual Assistance.
- Conduct a post-event debriefing to identify success stories, opportunities for improvement, and development of the After Action Report/Improvement Plan (IP).
- Correct response deficiencies reflected in the IP.
- Revise any applicable emergency response plans based on the success stories and/or lessons learned during the response.

3.6 Mitigation

- Conduct seismic evaluations of critical facilities.
- Perform seismic retrofits on vulnerable critical facilities and infrastructure.
- Implement non-structural projects at critical facilities and schools.
- Install shatterproof film on large windows in critical facilities and schools.
- Adopt seismic requirements of updated International Code Council.
- Participate in "Earthquake Preparedness Month" outreach activities during the month of October.
- Survey and install utility shut-off valves at all government buildings and schools.
- Encourage and educate businesses to implement seismic retrofit projects.
- Encourage private utilities to retrofit their systems for seismic stability.

4.0 Organization & Responsibilities

4.1 Organization

- All significant earthquake incidents will usually be managed using the Incident Command System. Responding and cooperating agencies should be incorporated into and ICS structure based on the needs of the incident and the most appropriate means of communication.
- The EOC may be activated to support field response operations with information and resource coordination.

4.2 Responsibilities

Coordinating Agency (LCCO DES)

- Give assistance and guidance to agencies & departments in the development of earthquake response plans.
- Assist in the development of pre-scripted messages and Special News Advisories.

- Provide earthquake awareness education to county employees and to the public.
- Operate the EOC at the appropriate level, maintain a chronological log of incident events, and coordinate for resources.
- Provide County PIO with information for media releases. Provide public information if the PIO is not available.
- Establish and staff telephone information lines to provide current information. Additionally, post information on the local government web pages, in newspapers, and other mass media.
- Coordinate with the ARC for any sheltering needs.
- Support the process for collection of damage assessments, document and report recovery actions, and coordinate with Montana DES.
- Hold periodic briefings when necessary for the EOC staff to exchange information.
- Notify Montana DES if it appears State or Federal assistance may be necessary.
- Participate in incident related conference calls

Cooperating Agencies

ALL

- Account for all employees, inspect buildings implement building evacuation until safety of the structure can be determined.
- Implement earthquake or other disaster plans including the inspection and testing of emergency power generators, emergency lights, flashlights, and generator fuel status.
- Implement continuity of operations (COOP) plans
- When requested, provide personnel and equipment to assist in route alerting or door-to-door warnings, SAR missions, debris cleanup and other duties as specified by the requesting authority.
- Provide a representative to the EOC during the response and recovery phases.
- Document costs for reimbursement and auditing purposes.
- Evaluate and review procedures/guidelines to ensure operational readiness.
- Assist in identifying personnel and resources to support this Annex.
- Work with LCCO DES to keep this Annex up-to-date.

American Red Cross (ARC) (ESF 6)

- Provide shelters, feeding, and mass care assistance in accordance with established SOP/SOGs and ability.
- Conduct a windshield damage survey within the first 24 hours as able.

Chief Elected Officials (ESF 5)

- Declare an emergency and/or a disaster with up to a 2-mill levy, if appropriate. Separate declarations are required for each affected jurisdiction (county, Helena, East Helena.) A disaster declaration will allow a request to MTDES for assistance.

City/County Health Department (ESF 8)

- Provide public health information and education concerning the effects of an earthquake.
- Inspect food and water supplies after an earthquake if necessary.
- Develop emergency public health regulations and orders due to an earthquake such as boil orders.
- Monitor the County for signs of water/food related infection or illness.
- Inspect shelters for sanitary conditions, including food and water supplies, wastewater and garbage disposal.
- Conduct damage assessment in licensed food facilities for contamination and refrigeration failures.

- Provide information on probable sewage contamination, identifying sources for portable toilets when needed, and providing information on appropriate clean-up.

Coroner's Office

- Serve as the lead agency for the collection, storage, and disposition of all human remains and their personal effects.

Fire Services (ESF 4)

- Fight fires, rescue victims, respond to hazmat incidents, provide emergency medical services and assist with damage assessment.
- Assist with evacuations, as requested and able.
- Assist with SAR missions, as requested and able.

Health & Medical Services (ESF 8):

- Area Ambulance services should transport and treat casualties as able. The St. Peter's Hospital emergency room can take up to 12 seriously injured patients. It has 99 beds with an emergency capacity of 144 beds and a 30-day stockpile of medicine. An emergency generator is available.
- The VA Hospital, 3 miles west of Helena, may take patients when St. Peter's is overloaded. The VA has 50 beds with an emergency capacity of 100 beds. Emergency power is available.

Law Enforcement (ESF 13)

- Provide units and personnel for route alerting and door-to-door warnings when requested.
- Coordinate evacuations.
- Coordinate SAR missions.
- Provide security to evacuated areas.
- Close roads as needed and establish evacuation routes. Provide alternate routing plans.
- Coordinate road closure and debris information with Public Works. Emphasize reporting of debris and blocked roads, power outages, power lines, and possible electrical and fire hazards.

Public Works (ESF 3)

- Provide a representative to the Damage Assessment Group in the EOC if activated.
- Conduct damage assessments in the aftermath of a severe earthquake. Coordinate with Incident Command to inspect priority buildings first, which are essential service, hospitals, nursing homes, and shelters. See the Damage Assessment Annex for more information.
- Assess damage to bridges, streets, government buildings, dams, and containment ponds.
- Provide information on road situations to include open/closed data, bridge status and general damage.
- Coordinate debris removal, with an emphasis on roads that need to be cleared for emergency traffic.
- Assist with restoration of basic services. Repairs to water and sewer mains, streets and bridges should be made in order of priority.
- Assist LE with traffic control with the use of barriers and signs.
- Identify contractors who can provide heavy and specialized equipment support during emergencies and individuals and businesses that may lease equipment during emergencies.
- Closely document all emergency work under an assigned unique work order including equipment and materials used, fuel consumed, worker overtime, tipping fees and number or volume of debris loads.
- Coordinate emergency permitting and inspection processes for public and private property recovery work to ensure compliance with safety, environmental, and fire standards.

Montana Disaster & Emergency Services (DES)

- Coordinate assistance to local government and mobilization of resources per the provisions of the Montana Emergency Response Framework.

Federal Emergency Management Agency (FEMA)

- Administers assistance to the state pursuant to PL 93-288 of the Disaster Relief Act of 1974, Section 417, when threat would constitute a major disaster.

5.0 Authorities and References

5.1 Authorities

- *See Section 5.1 of Basic Plan.*

5.2 References

- *See Section 5.2 of Basic Plan.*
- **Lewis and Clark County, Montana. November, 2005**. Section III, Hazard Specific Annexes, Annex 2 – Earthquake.
- **Sanders County Montana. October 2010.** Earthquake Incident Annex.

6.0 Attachments

Attachment 1: Acronyms 15
Attachment 2: Definitions: 16
Attachment 3: EAS Instructions to the Public 17
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Attachment 5: Mercalli and Richter Scales 19
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Attachment 1: Acronyms

Acronym	Meaning
ARC	American Red Cross
ARES	Amateur Radio Emergency Services
CAP	Civil Air Patrol
CBO	Community Based Organization
CCRC	Capitol City Radio Club
CEO	Chief Executive Officer (*also Chief Elected Official*)
CERT	Community Emergency Response Team
COOP/COG	Continuity of Operations/Government
DES	Disaster And Emergency Services
DESC	DES Coordinator
DNRC	Dept. of Natural Resources & Conservation (Montana)
DPHHS	Dept. of Public Health & Human Services
EAS	Emergency Alert System
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
ESF	Emergency Support Function
FBO	Faith Based Organization
FEMA	Federal Emergency Management Agency
IAP	Incident Action Plan
IC	Incident Commander
ICP	Incident Command Post
ICS	Incident Command System
IMT	Incident Management Team
JIC	Joint Information Center
LCCO	Lewis & Clark County
LE	Law Enforcement
LEPC	Local Emergency Planning Committee
MCA	Montana Code Annotated
MDT	Montana Dept. of Transportation
MTDES	Montana Disaster & Emergency Services
NGO	Non Governmental Organization
NWS	National Weather Services
P.L.	Public Law
PIO	Public Information Officer
SAR	Search & Rescue
SECC	State Emergency Coordination Center (MTDES)
SOP	Standard Operating Procedure
UC	Unified Command
VA	Veteran's Administration

Attachment 2: Definitions:

None Identified.

Attachment 3: EAS Instructions to the Public

(Provide the magnitude of the earthquake and the location and extent of damage, if known. If this is unknown, state that this should be made public as soon as it is available.)

1. Check for injuries and do not move the seriously injured unless they are in immediate danger.
2. Check utilities and shut them off only if they are damaged. If there is a gas leak, turn off the main gas valve next to your gas meter. Do not light matches. Open windows and doors and contact the power company. Leave and do not reenter the building until it is safe. (***Give location of Red Cross shelters***)
3. Emergency water may be obtained from melted ice cubes and hot water and toilet tanks, but not the bowl. *DO NOT use water from the toilet tank if you are using a chemical cleaning agent that is dispensed in the tank*. Bottled beverages are a good temporary substitute for water.
4. Ensure sewer lines are intact before flushing your toilet.
5. Check chimneys for cracks and damage. Unnoticed damage could lead to a fire. Approach chimneys with caution and keep your distance.
6. Be prepared for aftershocks.
7. Stay out of damaged buildings.
8. Do not use the telephone except to report emergencies.
9. Do not go sightseeing.
10. Cooperate with authorities

Attachment 4: Incident Stabilization/Restoration Priorities

When all else fails, the priority for restoration should focus on protection of life as the number one priority, followed by property and finally the environment. We realize that specific items may change based on the situation facing the decision makers at any given moment. The following lists are meant to be general guidelines.

Facilities

- 911 System, EOC, Hospitals
- Fire Stations
- Red Cross Shelters, (i.e. schools and churches)
- Water Treatment Plants
- Nursing Homes and other congregate care facilities

Communication

- City/County Emergency Communications
- EOC communications services
- QWEST lines

Transportation

- Primary arterials and buses/routes, freight service, ambulances, collector streets
- Evacuation assistance

Personnel

- Workers essential to recovery actions

Water

- Fire Suppression
- Potable water, Sanitation
- Industrial processes

The priorities reflected in this diagram are general guidelines for returning the county to operational and economic normalcy only.

Later priorities include:

- Pharmaceuticals
- Food
- Banking facilities
- Insurance Firms

Attachment 5: Mercalli and Richter Scales

The modified Mercalli and Richter scales are methods for measuring earthquakes. The Mercalli scale measures the intensity of an earthquake, and gives a rough idea of the amount and types of damage that may result at each level. The Richter scale measures magnitude, or the amount of energy released from an earthquake, but makes no direct estimate of damages. Each level, or point, in the Richter scale is 10 times more powerful than the previous point. For example, a six-point earthquake is ten times more powerful than a five, and 100 times more powerful than a four. Soil and rock type, and distance from the epicenter, as well as the quake's magnitude affect damage caused by an earthquake.

Richter Magnitude	Mercalli Intensity	Perception Radius	Description
2	**I.**	15 miles	Not felt, except by a very few under especially favorable circumstances
2	**II.**		Felt by only a few persons, especially on upper floors of buildings. Delicately suspended objects may swing
3	**III.**		Felt quite noticeably indoors, especially on upper floors of buildings, but may not be recognized as an earthquake. Standing motor vehicles may rock slightly. Vibration like the passing of a truck
3-4	**IV.**	30 miles	During the day, felt indoors by many; outdoors by few. At night, some awakened. Dishes, windows, doors disturbed, walls make creaking sound. Sensation like heavy truck striking building. Standing motor vehicles rocked noticeably
4	**V.**		Felt by nearly everyone; if at night, many awakened. Some dishes, windows, etc. broken. Some cracked plaster. Unstable objects overturned. Disturbance of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop
5	**VI.**	125 miles	Felt by all. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight
5-6	**VII.**		Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures. Some chimneys broken. Noticed by people driving motor vehicles
6	**VIII.**	170 miles	Damage slight in specially designed structures, considerable damage or partial collapse in ordinary substantial buildings; great damage in poorly built structures. Panel walls thrown out of frame structures. Factory stacks, columns, monuments, and walls toppled. Heavy furniture overturned. Some evidence of ground movement; changes in well water. Persons driving motor vehicles disturbed
7	**IX.**		Considerable damage in specially designed structures; well-designed frame structures thrown out of plumb. Great damage and partial collapse in substantial buildings. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken
7-8	**X.**	250 miles	Some well-built wooden structures destroyed. Most masonry and frame structures destroyed. Foundations and ground badly cracked. Rails bent. Landslides on riverbanks and steep slopes. Shifted sand and mud. Water washes over stream and lake banks
8	**XI.**		Few masonry structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and slips in soft ground
8+	**XII.**	450 miles	Damage total. Waves seen on ground surfaces. Lines of sight and level distorted. Objects thrown upward into air

These relationships are approximate. An earthquake of 6 on the Richter scale could result in a Mercalli measurement either below or above the VIII-IX range, depending upon depth of focus, distance from the epicenter, and soil and rock types

Attachment 6: Sample Condemned Building Notice

LIMITED ENTRY

OFF LIMITS TO UNAUTHORIZED PERSONNEL

WARNING:

This structure has been damaged on (Date) _____ and its safety is questionable. (Time)_____

Enter only at own risk. After-shocks or other events may result in injury or death. This facility was inspected under emergency conditions for: _____

RESTRICTIONS ON USE: (Jurisdiction) _____

_____ Entry for emergency purposes only on the date and time noted above.

_____ Other

Facility Name and Address: Inspector ID/Agency

DO NOT REMOVE THIS PLACARD UNTIL AUTHORIZED BY GOVERNING AUTHORITY